



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 226

[Docket No. 211215-0260; RTID 0648-XR119]

Endangered and Threatened Wildlife and Plants; Removal of Johnson's Seagrass from the Federal List of Threatened and Endangered Species and Removal of the Corresponding Designated Critical Habitat

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: We, NMFS, propose to remove Johnson's seagrass (*Halophila johnsonii*) from the Federal List of Threatened and Endangered Species. To correspond with this action, we are also proposing to remove the critical habitat designation for Johnson's seagrass. We propose these actions based on newly obtained genetic data that demonstrate that Johnson's seagrass is not a unique taxon but rather a clone of an Indo-Pacific species, *Halophila ovalis*.

DATES: Information and comments on the subject action must be received by *[insert date 60 days after date of publication in the FEDERAL REGISTER]*.

ADDRESSES: You may submit comments on this document, identified by NOAA-NMFS-2021-0117, by any of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to <https://www.regulations.gov> and enter NOAA-NMFS-2021-0117 in the Search box. Click on the "Comment" icon, complete the required fields, and enter or attach your comments.

- *Mail:* Submit written comments to Adam Brame, Protected Resources Division, NMFS Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.*, name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous).

FOR FURTHER INFORMATION CONTACT: Adam Brame, NMFS Southeast Regional Office, *Adam.Brame@noaa.gov*, (727) 209-5958.

SUPPLEMENTARY INFORMATION:

Background

A small-statured seagrass species found within Florida's southeastern coastal lagoon system was formally identified as Johnson's seagrass (*Halophila johnsonii*) in 1980 (Eiseman and McMillan 1980). Prior to this designation, it was often referred to as *H. decipiens*, though it is most similar to the morphologically diverse Indo-Pacific species, *H. ovalis*. Morphological and physiological variations were the bases for its taxonomic identification as *H. johnsonii*. For example, Johnson's seagrass was differentiated from other Atlantic *Halophila* species by its smooth leaf margins, angle of the cross veins extending from the midrib, and the lack of hairs on the blade surface (Eiseman and McMillan 1980).

Johnson's seagrass grows in a variety of conditions within Florida's intracoastal waters from Sebastian Inlet to Virginia Key in Biscayne Bay. This is the smallest

geographic distribution of any seagrass worldwide. Within this range, it is among the least abundant seagrass. It grows in small, sparse patches and may disappear from areas for months or years before reappearing. It can co-occur with other seagrasses, but its short stature precludes it from occurring within dense stands of taller species because it is outcompeted for light resources. Johnson's seagrass has a broader tolerance range for light, temperature, and salinity than congeners and seems capable of growing in suboptimal conditions where other species cannot survive. Johnson's seagrass grows in the intertidal zone, on dynamic flood deltas inside ocean inlets, at the mouths of freshwater discharge canals, and subtidal waters to depths of approximately 3-4 meters.

Johnson's seagrass is dioecious, meaning each plant only contains the flowers of one sex (male or female). Interestingly, no individual Johnson's seagrass plants have been found with male flowers. Similarly, researchers have not found any seedlings. These observations suggest that Johnson's seagrass reproduces only through vegetative fragmentation (asexual reproduction) and not through the development and dispersal of seeds (sexual reproduction). This strategy likely hinders its ability to expand in range or recolonize following disturbances.

Given the extremely limited geographical distribution of Johnson's seagrass (about 200 kilometers (km) of Florida coastline), its limited reproductive potential (only asexual reproduction), and the variety of threats that could affect survival, NMFS conducted a status review to consider whether it should be added to the Federal List of Threatened and Endangered Species. NMFS published a proposed rule to list the species as threatened on September 15, 1993 (58 FR 48326), and a proposed rule to designate critical habitat on August 4, 1994 (59 FR 39716). Additional research on the ecology of this species subsequently became available and was considered in an updated status review, which was completed in 1997. NMFS published a final rule listing Johnson's

seagrass as a threatened species in 1998 (63 FR 49035, September 14, 1998) and a final rule designating critical habitat in 2000 (65 FR 17786, April 5, 2000).

At the time of listing, the best available data indicated Johnson's seagrass: (1) had perhaps the smallest geographic range of any seagrass species worldwide; (2) had a sparse, patchy distribution throughout its range and an ability to survive in a variety of environmental conditions; (3) lacked male flowers necessary for sexual reproduction and therefore appeared to only reproduce asexually; and (4) was unique from other North American *Halophila* species based on morphology, physiological ecology, and genetic analyses. However, the 1997 status review also indicated that more detailed studies were necessary to evaluate the overall genetic structure and diversity of *H. johnsonii*. This need was reiterated in the 2002 Johnson's Seagrass Recovery Plan.

A 1997 genetics study using randomly amplified primer DNA-polymerase chain reactions (RAPD-PCR) indicated that genetic diversity was higher than expected at one location within the range of Johnson's seagrass (Jewitt-Smith *et al.* 1997). Yet this study relied on a limited sample size, and a subsequent study using similar techniques indicated very low genetic diversity within *H. johnsonii* as compared to the co-occurring species, *H. decipiens* (Freshwater 1999). The low genetic diversity was attributed to the lack of sexual reproduction. The methodology used in assessing these *Halophila* samples did not provide the resolution necessary to make species level conclusions about phylogeny (history of the evolution of a species or group, including relatedness within a group).

A molecular phylogenetic analysis of the genus *Halophila* using internal transcribed spacer (ITS) regions of nuclear ribosomal DNA indicated that *H. johnsonii* could not be distinguished from *H. ovalis* and should be further researched (Waycott *et al.* 2002). Umichura (2008) came to a similar conclusion and suggested that *H. johnsonii* and two other *Halophila* species should be reclassified as the broadly distributed *H. ovalis*. Short *et al.* (2010) used ITS regions of nuclear ribosomal sequences and

morphology to demonstrate that *Halophila* samples from Antigua belonged to *H. ovalis* and were genetically identical to *H. johnsonii*. Short *et al.* (2010) also found that *Halophila* samples from both Antigua and the United States (previously identified as *H. johnsonii*) fell within the range of morphological characteristics diagnostic for *H. ovalis*, and particularly for *H. ovalis* from east Africa. The outcomes of these studies raised more questions about the taxonomy of *Halophila* species, particularly *H. johnsonii*, given its unusually restricted geographic range, its limited reproductive strategy, and its morphometric similarities to other Indo-Pacific species of *Halophila*.

NMFS began funding projects to resolve the taxonomic uncertainty of Johnson's seagrass in 2012. Waycott *et al.* (2015) used multiple genetic approaches including microsatellite DNA and next generation sequencing to detect single nucleotide polymorphisms (SNPs). Results of this work indicated a complete lack of genetic diversity across the range of Johnson's seagrass and through time, indicating all samples analyzed were from a singular clone. Samples collected and analyzed from Antigua contained the same genetic markers as samples from Florida, suggesting these too were part of the same clone (Waycott *et al.* 2015) despite the Antigua samples having been previously identified as *H. ovalis* (Short *et al.* 2010). Finally, Waycott *et al.* (2015) genetically compared samples from both Florida and Antigua with *H. ovalis* samples collected throughout that species' range (Indo-Pacific). Results indicated all samples, regardless of location or identification, had allelic overlap (same gene variations) at 6 of 10 microsatellite loci analyzed, suggesting samples from the Atlantic originated from *H. ovalis* of the Indo-Pacific. While this report provided further evidence that *H. johnsonii* was not a unique taxon, SNP locations for *H. ovalis* had yet to be verified for *H. johnsonii* samples and the report did not present a comprehensive population genetic analysis of *H. ovalis*.

NMFS provided support for a follow-up study in 2017, published as Waycott *et al.* (2021). This study expanded previous efforts with the intent of solidifying the methods and providing a robust conclusion regarding the taxonomic uncertainty within the *H. ovalis* complex. The study used multiple methodological approaches and created molecular data sets for samples of both *H. johnsonii* and *H. ovalis* collected throughout the range of each species. Phylogenetic analyses of 105 samples of *Halophila spp.* from 19 countries using plastid (17,999 base pairs (bp)) and nuclear (6,449 bp) DNA sequences derived from hybrid capture both resolved *H. johnsonii* within *H. ovalis*. A third phylogenetic analysis using 48 samples from 13 populations identified 990 genome-wide SNPs (generated via double digest restriction-site associated digest sequencing (ddRAD)) and also nested *H. johnsonii* within *H. ovalis*. All three phylogenetic analyses indicated *H. johnsonii* samples were most similar to *H. ovalis* samples from Antigua and east Africa.

Waycott *et al.* (2021) also assessed population-level differences using both the genome-wide SNPs (990) developed in the phylogenetic analysis (47 of the 48 samples from 13 populations) and microsatellites (294 samples at 10 microsatellite loci). Cluster analysis indicated three populations within the *H. ovalis* complex, with *H. johnsonii* being part of the Indo-Pacific/Atlantic clade. Other results demonstrated genetic uniformity of all 132 *H. johnsonii* samples, indicating a complete lack of genetic diversity that is consistent with clonal (asexual) reproduction and a single colonization event. These same 132 samples and the 12 *H. ovalis* samples from Antigua shared a single multilocus genotype at all nine comparable microsatellite loci. Furthermore, all 12 *H. johnsonii* samples and the single *H. ovalis* sample from Antigua genotyped with ddRAD loci shared the same multilocus genotype. In contrast, other *H. ovalis* populations, such as those from Australia, generally had multiple multilocus genotypes and substantial genetic diversity, indicating that the genetic markers would have detected

differences if they were present. The population-level analyses indicate that *H. johnsonii* is genetically indistinguishable from *H. ovalis*, clustering with samples from Antigua and east Africa.

Collectively, the Waycott *et al.* (2021) study concludes that the entire range of *H. johnsonii* is a single clone of a morphological variant of the Indo-Pacific species, *H. ovalis*. While previous studies suggested a genetic similarity between the two species, they were unable to definitively clarify the taxonomy. In Waycott *et al.* (2021), the use of multiple, highly variable, co-dominant genetic markers resolved genetic relationships more clearly than previous studies, which used low variation and/or dominant genetic markers.

NMFS solicited the assistance of the NOAA Genetics Group to review Waycott *et al.* (2021). Four reviewers determined that the laboratory and statistical methods used by Waycott *et al.* (2021) were appropriate and sufficient to support the authors' conclusions. They noted that multiple independent genetic analyses confirmed that *H. johnsonii* nests within *H. ovalis*, with the greatest similarity to Antigua and East Africa samples. The reviewers agreed that the research provided in Waycott *et al.* (2021) constitutes the best available scientific (in this case, genetic) information on the taxonomy of Johnson's seagrass. They confirmed that the concordance of the results from multiple genetic data types and across complementary analytic methods provides strong support for the conclusion that *H. johnsonii* is genetically indistinguishable from *H. ovalis*. The reviewers agreed with the conclusion of the authors that "lack of genetic diversity and the absence of sexual reproduction strongly indicate that the total range of *H. johnsonii* is actually one clone that is closely related to *H. ovalis* populations in Africa and Antigua..." They found this conclusion was further supported by the complete absence of male *H. johnsonii* plants, which suggests that it consists of a single female clone.

Basis for Determination

Section 3 of the Endangered Species Act (ESA) defines the term “species” as any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. Pursuant to implementing regulations in 50 CFR 424.11(a), in determining whether a particular taxon or population is a species under the ESA, we rely on standard taxonomic distinctions as well as our biological expertise and that of the scientific community concerning the relevant taxonomic group.

Under section 4(c)(1) and 4(c)(2) of the ESA, the Secretary is required to periodically review and revise the Federal List of Endangered and Threatened Species and consider, among other things, whether a species’ listing status should be changed, including whether the species should be removed from the list. Pursuant to implementing regulations for the ESA at 50 CFR 424.11(e) – the Secretary shall delist a species if, after conducting a status review based on the best scientific and commercial data available, the Secretary determines: (1) the species is extinct; (2) the species does not meet the definition of an endangered species or threatened species; or (3) the listed entity does not meet the statutory definition of a species. When conducting a status review, if we determine the entity under review does not meet the statutory definition of a species, the status review would conclude at that point without further evaluation because we can only list entities that qualify as species under the ESA. In this case, our status review is our assessment of the best scientific and commercial data available as presented in this proposed rule, which supports the determination that Johnson’s seagrass does not meet the statutory definition of a species. Therefore, our status review concluded without a re-assessment of the five listing factors. As presented in Waycott *et al.* (2021) and independently confirmed by four expert reviewers from the NOAA Genetics Group, the results of extensive genetic and phylogenetic analyses indicate *H. johnsonii* is a single clone of a morphological variant of *H. ovalis*, and therefore, is not a unique species.

We find the best scientific and commercial data available demonstrate that *H. johnsonii* is not a unique taxon but rather a morphological variant of *H. ovalis*, and thus is not a species eligible for listing under the ESA. Therefore, we propose to remove *H. johnsonii* from the Federal List of Threatened and Endangered Species.

Effects of the Determination

If we delist *H. johnsonii* then the protections of the ESA would no longer apply to it. Since critical habitat can only be designated for species listed under the ESA, delisting *H. johnsonii* would also trigger the need to remove the currently designated critical habitat, as we propose in this rule. Delisting *H. johnsonii* and removal of the designated critical habitat are specific to the ESA and would have no effect on other Federal, state, county, or local seagrass protections that may be in place. In addition, because *H. ovalis* is not listed as an endangered species or threatened species under the ESA, our proposed delisting of *H. johnsonii* would have no effect on the status of *H. ovalis*.

Per the joint NMFS–U.S. Fish and Wildlife Service Post-Delisting Monitoring Plan Guidance (2008, updated in 2018), the post-delisting monitoring requirements of section 4(g) of the ESA apply without exception to all species delisted due to biological recovery, but do not pertain to species delisted for other reasons, such as taxonomic revision. Based on this reasoning, there is no need for a post-delisting monitoring plan for *H. johnsonii*.

References Cited

The complete citations for the references used in this document can be obtained by contacting NMFS (See **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**).

Information Quality Act and Peer Review

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review

standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Peer Review Bulletin, implemented under the Information Quality Act (Pub. L. 106–554), is intended to enhance the quality and credibility of the Federal government’s scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005.

To satisfy the requirements under the OMB Peer Review Bulletin, the Waycott *et al.* (2021) manuscript was subjected to peer review in accordance with the Bulletin. Our proposed action relies upon new information within the manuscript, which we consider “influential scientific information.” While the manuscript was published in the peer-reviewed journal *Frontiers in Marine Science*, and peer reviewed by that journal prior to publication, we also peer reviewed the manuscript. We established a peer review plan that consisted of subjecting the manuscript to review by a panel of four expert reviewers identified by NOAA’s Genetics Group. The peer review plan, which included the charge statement to the peer reviewers, and the resulting peer review report are posted on the NOAA peer review agenda at: <https://www.noaa.gov/organization/information-technology/peer-review-plans>. In meeting the OMB Peer Review Bulletin requirements, we have also satisfied the requirements of the 1994 joint U.S. Fish and Wildlife Service and NMFS peer review policy (59 FR 34270, July 1, 1994).

Classification

National Environmental Policy Act (NEPA)

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing to the best scientific and commercial data available. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation v. Andrus*, 657 F. 2d 829 (6th Cir. 1981), we have concluded that NEPA does not apply to ESA listing actions. (See NOAA

Administrative Order 216–6A and the Companion Manual for NOAA Administrative Order 216-6A, regarding Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities).

Executive Order 12866, Regulatory Flexibility Act, and Paperwork Reduction Act

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this proposed rule is exempt from review under Executive Order 12866. This proposed rule does not contain a collection of information requirement for the purposes of the Paperwork Reduction Act.

Executive Order 13132, Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations where a regulation will preempt state and local law, or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of these circumstances is applicable to this proposed rule.

List of Subjects

50 CFR Part 223

Threatened marine and anadromous species.

50 CFR Part 226

Designated critical habitat.

Dated: December 16, 2021.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs,
National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 223 and part 226 are proposed to be amended as follows:

PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531-1543; subpart B, § 223.201-202 also issued under 16 U.S.C. 1361 et seq.; 16 U.S.C. 5503(d) for § 223.206(d)(9).

§ 223.102 [Amended]

2. In § 223.102, in the table in paragraph (e), under the subheading “Marine Plants”, remove the entry for “Seagrass, Johnson’s (*Halophila johnsonii*)”.

PART 226—DESIGNATED CRITICAL HABITAT

3. The authority citation for part 226 continues to read as follows:

Authority: 16 U.S.C. 1533.

§ 226.213 [Removed and Reserved]

4. Remove and reserve § 226.213.

[FR Doc. 2021-27631 Filed: 12/22/2021 8:45 am; Publication Date: 12/23/2021]